

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A waveguide orthomode transducer comprising:

an electric wave branch means for branching a horizontally polarized electric wave included in a circularly-polarized-wave signal inputted thereto toward first horizontal symmetrical directions, and for branching a vertically polarized electric wave included in the circularly-polarized-wave signal toward second horizontal symmetrical directions;

a first radio wave conducting means for conducting ~~one~~a first electric wave of the horizontally polarized electric wave branched by said electric wave branch means, for conducting ~~another~~a second electric wave of the horizontally polarized electric wave, for combining the first and second electric waves of the horizontally polarized electric wave ~~into one electric wave~~ and dividing ~~this~~ the combined electric wave into ~~an electric wave of a first basic mode electric wave~~ and ~~an electric wave of a first higher mode electric wave~~, and for outputting them;

and a second radio wave conducting means for conducting ~~one~~a first electric wave of the vertically polarized electric wave branched by said electric wave branch means, for conducting ~~another~~a second electric wave of the vertically polarized electric wave, for combining the first and second electric waves of the vertically polarized electric wave ~~into one electric wave~~ and dividing ~~this~~ the combined electric wave into ~~an electric wave of a second basic mode electric wave~~ and ~~an electric wave of a second higher mode electric wave~~, and for outputting them.

2. (Currently Amended) The waveguide orthomode transducer according to Claim 1, ~~characterized in that~~wherein said electric wave branch means is provided with a circular main waveguide for conducting the circularly-polarized-wave signal inputted thereto via an input/output terminal, a first square main waveguide for conducting the circularly-polarized-wave signal conducted by said circular main waveguide, and a second square main waveguide having an opening diameter different from that of said first square main waveguide, for branching the horizontally polarized electric wave included in the circularly-polarized-wave signal conducted by said first square main waveguide toward the first horizontal symmetrical directions, and for branching the vertically polarized electric wave included in the circularly-polarized-wave signal toward the second horizontal symmetrical directions.

3. (Currently Amended) The waveguide orthomode transducer according to Claim 1, ~~characterized in that~~wherein said electric wave branch means is provided with a first square main waveguide for conducting the circularly-polarized-wave signal inputted thereto via an input/output terminal, and a second square main waveguide having an opening diameter different from that of said first square main waveguide, for branching the horizontally polarized electric wave included in the circularly-polarized-wave signal conducted by said first square main waveguide toward the first horizontal symmetrical directions, and for branching the vertically polarized electric wave included in the circularly-polarized-wave signal toward the second horizontal symmetrical directions.

4. (Currently Amended) The waveguide orthomode transducer according to Claim 2, ~~characterized in that~~wherein said second square main waveguide has an end ~~which is opposite to~~

~~another end~~ connected to said first square main waveguide and ~~which is an opposite end~~ blocked by a short-circuit plate on which a quadrangular-pyramid-shaped metallic block is placed.

5. (Currently Amended) The waveguide orthomode transducer according to Claim 3, ~~characterized in that~~wherein said second square main waveguide has an end ~~which is opposite to another end~~ connected to said first square main waveguide and ~~which is an opposite end~~ blocked by a short-circuit plate on which a quadrangular-pyramid-shaped metallic block is placed.

6. (Currently Amended) The waveguide orthomode transducer according to Claim 1, ~~characterized in that~~wherein each of said first and second radio wave conducting means has a terminal for outputting ~~an~~said first and second electric wave of a higher mode electric waves respectively, which is blocked by a short-circuit plate and which is constructed of a dielectric with loss.

7. (New) A method for branching polarized electric wave, comprising:

branching a horizontally polarized electric wave included in a circularly-polarized-wave signal inputted thereto toward first horizontal symmetrical directions;

branching a vertically polarized electric wave included in the circularly-polarized-wave signal toward second horizontal symmetrical directions;

conducting a first electric wave of the horizontally polarized electric wave;

conducting a second electric wave of the horizontally polarized electric wave;

combining the first and second electric waves of the horizontally polarized electric wave and dividing the combined electric wave into a first basic mode electric wave and a first higher mode electric wave, and outputting them;

conducting a first electric wave of the vertically polarized electric wave;

conducting a second electric wave of the vertically polarized electric wave;

combining the first and second electric waves of the vertically polarized electric wave and dividing the combined electric wave into a second basic mode electric wave and a second higher mode electric wave, and outputting them.